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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/717,138

11/22/2000

Shunpei Yamazaki

0756-2232

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01/30/2004

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EXAMINER

AKKAPEDDI, PRASAD R

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 01/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/717,138

Applicant(s)

YAMAZAKI ET AL.

Examiner

Prasad R Akkapeddi

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3,4,7,8,77-84,88-93 and 97-122 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3,4,7,8,77-84,88-93 and 97-122 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10212003 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3,4,7,8, 77-84, 88-90, 91-93 and 97-122 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa (U.S. Patent No. 6,195,143) in view of Colgan et al. (Colgan) (U.S. Patent No. 5,831,710).

As to claims 3,4,7 and 8: Ogawa discloses a liquid crystal panel comprising: a first substrate (821) including a plurality of pixel electrodes (823), a second substrate (825) including a counter electrode (824), a liquid crystal (827), a micro-lens array (830) including a plurality of micro-lenses. Ogawa discloses that the first substrate faces the second substrate through the plurality of pixel electrodes, the counter electrode, the liquid crystal (Fig. 3) and the micro-lens array is provided on a surface of the second substrate (825), the surface being opposite to a surface that faces the first substrate (821). Ogawa also discloses that the plurality of lenses (830) are provided on one-on-one basis with respect to the plurality of pixels (823), see Fig. 6 and (col. 8, lines 63-67), as recited in the instant claim 8.

Although, in Fig. 6 Ogawa shows the end gap holding member (not numbered), Ogawa does not explicitly disclose the gap holding members in the text or does he disclose that the gap holding members are formed by etching an insulating film.

Colgan on the other hand, in disclosing a liquid crystal display, discloses gap- holding members (24) that are circular column shape and tapered, and also discloses that these members are formed by etching an insulating material (col. 3, lines 59-65).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the gap holding members to provide a precise vertical gap over the display area (col. 1, lines 55-56).

As to claims 77-79 and 97-100: Ogawa discloses a liquid crystal projector (Fig. 10D) comprising a white light source (110), splitting means (200) for splitting white light emitted from the white light source into a plurality of lights having different colors (R,G,B), a plurality of liquid crystal panels (250,252,254) respectively corresponding to the plurality of lights; first optical means (120) for irradiating the plurality of lights to the plurality of corresponding liquid crystal panels; and second optical means (270) for condensing a plurality of transmitted lights transmitted through the plurality of liquid crystal panels, wherein: the plurality of liquid crystal panels includes a first substrate (821), a second substrate (825), the plurality of lights are irradiated from a side of the second substrate (825) to the liquid crystal panel, a pixel portion including a plurality of pixels (823) is provided on the first substrate (821), each of the plurality of pixels includes a pixel electrode (823) and a thin film transistor (822) connected to the pixel electrode, a micro-lens array (830) is provided at a side of the second substrate (825). Ogawa also discloses that the plurality of lenses (830) are provided on one-on-one basis with respect to the plurality of pixels (823), see Fig. 6 and (col. 8, lines 63-67), as recited in the instant claims 78, 79 and 100.

Although, in Fig. 6 Ogawa shows the end gap holding member (not numbered), Ogawa does not explicitly disclose the gap holding members in the

text or does he disclose that the gap holding members are formed by etching an insulating film.

Colgan on the other hand, in disclosing a liquid crystal display, discloses gap- holding members (24) and also discloses that these members are formed by etching an insulating material (col. 3, lines 59-65).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the gap holding members to provide a precise vertical gap over the display area (col. 1, lines 55-56).

As to claims 101-122: Ogawa does not disclose that the gap holding members are located over contact holes where the plurality of pixel electrodes are connected with wirings or the gap holding members are arranged with a constant interval.

Colgan discloses the constant interval of the gap holding members (Fig. 2) and contact holes in each pixel location in the array (26) there is indicated the pixel electrode (22) for reach through contact to the display circuitry in the substrate (col. 4, lines 1-4) and Fig. 2.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the gap holding members to provide a precise vertical gap over the display area (col. 1, lines 55-56).

3. Claims 80-81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa and Colgan as applied to claims 78 and 79 above, and further in view of Hirakata et al. (Hirakata) (U.S. Patent No. 5,982,471).

As to claims 80-81: Ogawa discloses a liquid crystal projector with a liquid crystal panel. Neither Ogawa nor Colgan go in to the details of the TFT and active matrix panel itself.

Hirakata in disclosing a liquid crystal display discloses that the thin film transistor includes plurality of pixels (pixel region), a semiconductor film including a source region (310), a drain region (311) and a channel formation region (314) which are connected to the pixel electrodes and a plurality of gap holding members (402) provides over the contact portions.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the gap holding members to provide less non-uniform cell gap (otherwise to provide uniform gap) and reduce poor electrical contacts within the display panel (col. 3, lines 17-24).

4. Claims 82-84, 88-93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa and Colgan as applied to claims 77, 78 and 79 above, and further in view of Shimuzu et al. (Shimuzu) (U.S. Patent No. 5,739,882).

Ogawa discloses a liquid crystal projector with a liquid crystal panel.

Ogawa does not go in to the details of the gap holding members. Colgan discloses that the gap holding members (24) are circular column shape but does

Art Unit: 2871

not disclose that the gap holding members are made from UV curable epoxy resin and have column shape.

Shimuzu in disclosing a LCD polymerized spacer discloses that the spacers (gap holding members) have a column shape (17) and are made from UV curable epoxy resin (col.2, lines 39-55).


Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the gap holding members to provide the gap holding members made from a resin material such that they do not change the state of the liquid crystal orientation (col. 2, lines 1-6) and further by using such polymerized column spacers, light shielding film can be eliminated from the liquid crystal panel (col.16, lines 48-59).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prasad R Akkapeddi whose telephone number is 703-305-4767. The examiner can normally be reached on 7:00AM to 5:30PM M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on 703-305-3492. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0530.

Prasad R Akkapeddi, Ph.D  
Examiner  
Art Unit 2871

  
PRASAD R AKKAPEDDI  
EXAMINER  
ART UNIT 2871  
MAY 10 2010



Application/Control Number: 09/717,138

Page 8

Art Unit: 2871

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